

FRANKLIN

National Facility
Oceanographic Research Vessel

RESEARCH PLAN

CRUISE FR 8/91

| | | |
|-------------------|------|---------------------------|
| Sail Cairns | 0600 | Tuesday 24 September 1991 |
| Arrive Townsville | 1500 | Monday 14 October 1991 |

PACLARK V

**GEOPHYSICAL AND GEOLOGICAL INVESTIGATION OF
WESTERN WOODLARK AND EASTERN MANUS BASINS,
PNG**

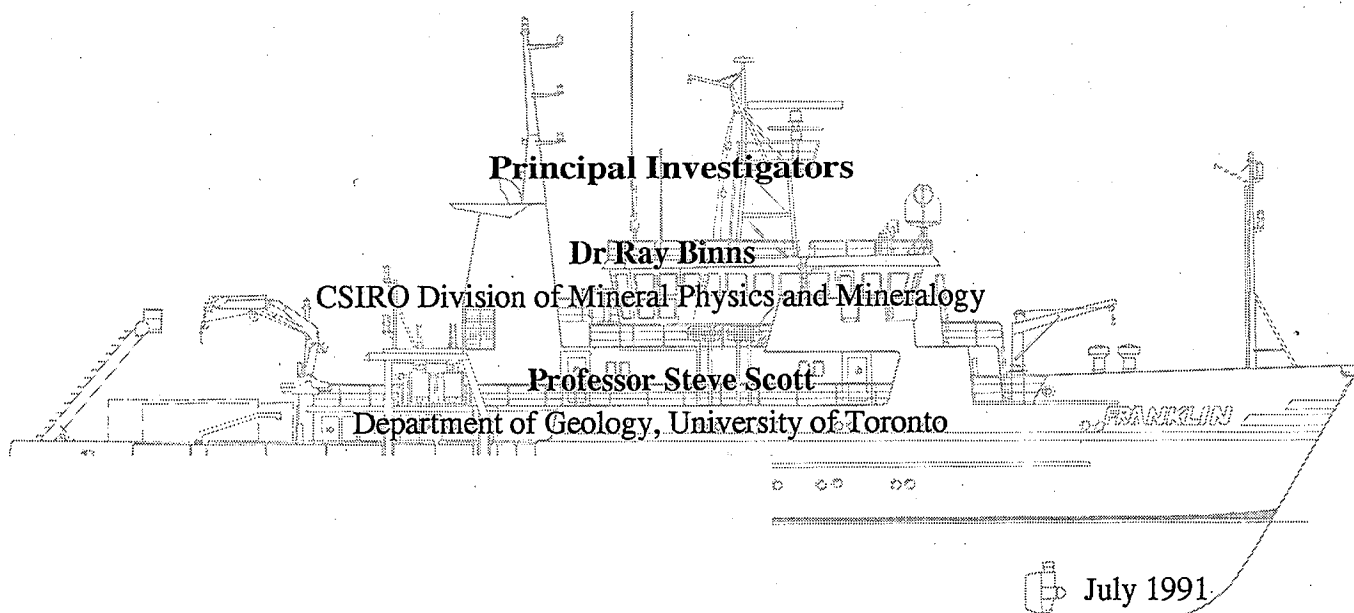
Principal Investigators

Dr Ray Binns

CSIRO Division of Mineral Physics and Mineralogy

Professor Steve Scott

Department of Geology, University of Toronto



July 1991

Bernadette Heaney

CSIRO Division of Oceanography

HOBART

Phone (002) 206 222

Fax (002) 240 530

Telex AA 57182

and operated by CSIRO

FRANKLIN

RESEARCH PLAN

CRUISE FR 8/91

Itinerary

| | | |
|-------------------|------|---------------------------|
| Sail Cairns | 0600 | Tuesday 24 September 1991 |
| Arrive Townsville | 1500 | Monday 14 October 1991 |

Scientific Program

PACLARK V

**Geophysical And Geological Investigation Of Western Woodlark
And Eastern Manus Basins, PNG**

Principal Investigators

Dr Ray Binns
CSIRO Division of Mineral Physics
and Mineralogy
PO Box 136, North Ryde NSW 2113
Telephone: 02-887-8741
Facsimile: 02-887-8903
Telex AA25817

Professor Steve Scott
Department of Geology
University of Toronto
Toronto, M5S 3B1, CANADA
Telephone : (416) 978-5424
Facsimile : (416) 978-3938

Cruise Objectives

To seek evidence for recent and current hydrothermal venting on the seafloor of the Western Woodlark and Eastern Manus Basins spreading systems, and to collect samples of vent plumes, precipitates, and associated rocks and sediments.

Cruise Track

Proceed from Cairns via Jomard Entrance to the first station at 9°50'S:151°50'E. Following operations in this vicinity, continue via the St Georges Channel to 3°40'S:151°50'E and continue operations. Exact tracks in each area will be dictated by progressive results. Return via Jomard Entrance to Townsville.

Operations

Over-the-side and traversing activities will be conducted on a 24 hour basis while on station, and will involve a variable combination of the following:

- traversing with echo-sounder and towed magnetometer
- dredging bottom rock samples (depths 1000 - 2500 m)
- sediment coring
- 2 - 5 km traverses with bottom following camera under tow at 0.5 - 1 knots
- CTD/transmissometer soundings and hydrocasts while drifting or moving slowly under TAC propulsion (10 - 400 m above bottom)
- possible use of sidescan traverses under TAC control using the CTD cable.

ORV Equipment Required

- Main winch and cable
- Tension, rate and wire out
- Hydro and CTD, winches and cables
- Scientific sounder
- 3.5 kHz sub-bottom profiler (on loan from DSTO)
- Pingers
- GPS and Satnav
- Computing and PC's
- CTD, transmissometer, rosette etc
- 30 l Niskin bottles
- Mille-Q pure water
- 3000 m SDL
- Biological Container Lab
- Fumehoods
- Dredging weak-links

Equipment Provided by Users

- Lister and other dredges and weights
- Towed camera system
- Sediment corer
- Magnetometer and cable
- Petrological microscopes
- Possible sidescan system to be flown, if safe, 250 m off bottom.

On-Board Analysis

Dredge and corer samples will be curated and examined microscopically (container and chemistry lab). Colour film may be processed on board (darkroom). Water samples to be filtered and analysed. General data processing, magnetometer etc. We hope to achieve automated recording and plotting of navigational data.

Time Budget

| | |
|--|----------------|
| Steaming to and from Woodlark Basin (12 knots) | 5 days |
| Diversion to Manus Basin (12 Knots) | 4 days |
| Operations, Woodlark Basin | 7 days* |
| Operations, Manus Basin | <u>5 days*</u> |
| Time available | 21 days |

* Subject to results at sea

Personnel

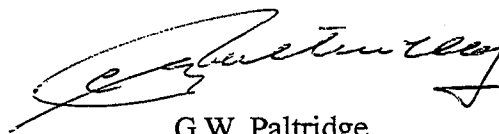
12 to be chosen from:

| | | |
|------------------------|--------------------------------|--------------------|
| Steve Scott | University of Toronto | Chief Scientist |
| Mike Gorton | " | |
| Mirek Benes | " | |
| Trevor Boyd | " | |
| A.N. Other | " | |
| Dick Chase | University of British Columbia | |
| Ian Clarke | " | |
| Nominee | PNG Geological Survey | |
| Ray Binns | CSIRO - Mineral Physics | Co-Chief Scientist |
| Dave Whitford | " | |
| Graeme Wheller | " | |
| Keith Crook or nominee | ANU- Geology | |
| Nominee | University of Hawaii | |
| Nominee | University of Tokyo | |
| Dave Edwards | CSIRO - ORV | Cruise Manager |

This cruise plan is in accordance with the directions of the National Facility Steering Committee for the oceanographic research vessel *Franklin*.



A.D. McEwan
CSIRO Division of Oceanography



G.W. Paltridge
Nation Facility Steering Committee

July 1991